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COMPLETE SPECIFICATION.

Improvements in Dental Pluggers.

We, HARRY SHOEMAKER and GUSTAVE PAUL GEHRING, both of 137 South Fifth Street, Philadelphia, County of Philadelphia, and State of Pennsylvania, United States of America, Electrician and Medical Doctor, respectively, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:

This invention relates to improvements in dental pluggers, and the object is to simplify and improve the construction, increase the efficiency, and reduce the cost of manufacture.

In the accompanying drawings;

10 Figure 1 is an enlarged longitudinal section of the dental plugger embodying the invention.

Figure 2 is a transverse section on line *x—x* of Figure 1 looking in the direction of the arrow.

Figure 3 is a similar view looking in opposite direction.

15 The numeral 1 denotes the hand-piece provided with the threaded heads or caps 2 and 3, each provided with aligned bearings for the axial shafting. 4 denotes the main shaft, whose projecting end is attached to the flexible shaft 5, of a dental engine. The inner end of the shaft has a bearing in the tubular shaft 6, loosely mounted, so as to have a limited longitudinal movement in the 20 head 3, and 7 is a spring actuated thumb brake, whose inner end extends through a slot 8, in the sleeve, and adapted to engage the main shaft and act as a friction brake, being normally held out of contact by the spring 9.

10 denotes a disk carried upon the inner end of the shaft 4, and provided with the loosely mounted ball hammers 12, so as to protrude upon both sides 25 of the disk. 13 is a cylindrical casing having a threaded cap 13¹, encompassing the disk, said casing being loosely mounted in the hand-piece. A helical spring 14 and a corresponding spring 15 occupy the space in the hand-piece upon both sides of the cylindrical casing; and the adjustment of these is such that normally the disk will revolve in the casing without coming in contact with 30 either of the casing's ends. The inner faces of the casing are provided with the hemispherical anvils 16 and 17, in line with the hammers 12. By employing three hammers and two anvils, in each end of the casing, a better result is obtained, as six positive longitudinal reciprocating impulses are imparted to the casing 13 and sleeve 6. A central tool *c* being fixed in the chuck end of the 35 sleeve 6, the hand-piece is grasped and when the point of the tool rests against the object, press forward so as to compress the spring 14, which bring the hammers in contact with the proper anvils and reciprocate the shaft and sleeve. A reverse pointed tool can be employed in this instrument, a pulling motion being imparted to cause the hammers to engage the proper anvils.

40 Having now particularly described and ascertained the nature of our said invention, and in what manner the same is to be performed, we declare that what we claim is:

1. A dental plugger, comprising a hand-piece, a longitudinally reciprocating sleeve carried thereby, a spring actuated anvil case, fixed to said sleeve and 45 loosely mounted in said hand-piece, a driving shaft journaled in said sleeve, anvil

[*Price 8d.*]

Shoemaker and Gehring's Improvements in Dental Pluggers.

case and hand-piece, and a hammer disk fixed on said shaft within the anvil case.

2. A dental plugger, comprising a hand-piece, a sleeve and case mounted therein, springs connecting said case and hand-piece, anvils fixed to the inner faces of the opposite ends of said case, a shaft journaled in the hand-piece, a disk 5 fixed on said shaft, hammer balls carried by said disk, and a brake carried by the hand-piece and adapted to impinge on said shaft.

3. In a dental plugger, a hand-piece, a sleeve formed with a slot, a case fixed to said sleeve, springs, a driving-shaft, a disk fixed on said shaft and a spring actuated finger brake mounted in the handpiece and extending into the slot of 10 the sleeve.

4. In a dental plugger, a hand-piece, a shaft passing through said hand-piece from end to end, a coil spring surrounding the shaft, a tubular sleeve slidably mounted in the other end of the hand-piece, and surrounding the lower end of the shaft to carry a tool, a cylindrical casing carried by the inner end of said 15 tubular sleeve, a series of anvils upon the inner faces of the casing, a disk carrying a series of ball hammers, which protrude upon both sides rigidly secured to the shaft and surrounded by the cylindrical casing, a coil spring surrounding said sleeve, and a spring actuated hand-brake to engage the sleeve and prevent its turning with the shaft. 20

5. In a dental plugger, a hand-piece, a shaft passing therethrough from end to end, a coil spring surrounding the shaft in the rear end of the casing, a tubular sleeve slidably mounted in the forward end of the casing and surrounding the forward end of the shaft adapted to carry a tool, a cylindrical casing adapted to slide in the hand-piece carried by the inner end of said sleeve and having a 25 series of anvils upon each inner face of the respective ends of said casing, a disk carrying a series of ball hammers which protrude upon both sides rigidly secured to the shaft and surrounded by the casing, a coil spring surrounding the tubular sleeve, and a spring actuated hand-brake to engage the tubular sleeve and prevent its turning with the shaft. 30

Dated this 23rd day of April, 1901.

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[This Drawing is a reproduction of the Original on a reduced scale.]



